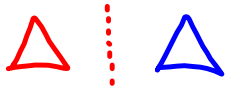
13.1-13.3 Transformations

rigid

Flips/Reflections : mirror image of shape across a given line



Translations (shift) moves the shape to another location.

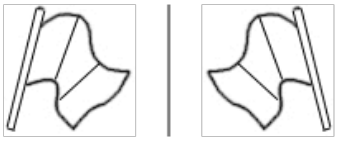
Rotations : rotate shape about given angle

Dilations : scale a shape by a given factor

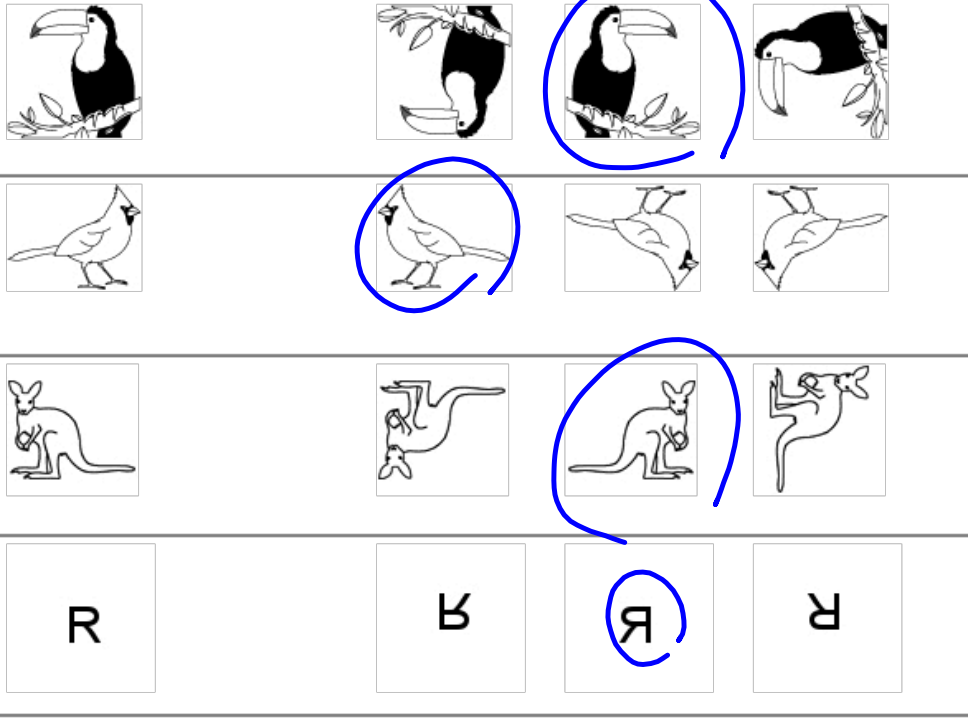
Name _____ Date _____

Horizontal Flips

A horizontal flip is a mirror image with the mirror to the right.



Circle the image that shows a horizontal flip.

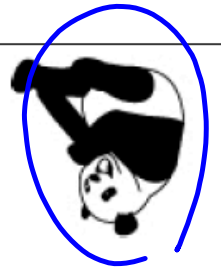


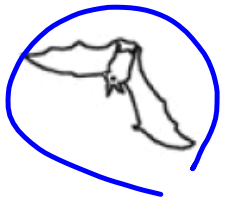
Name _____ Date _____

Vertical Flips

A vertical flip is a mirror image with the mirror below.

Circle the image that shows a vertical flip.

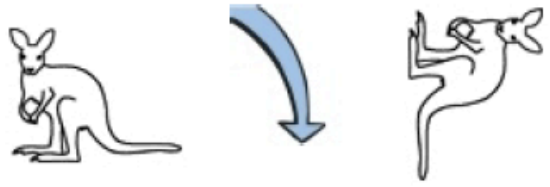




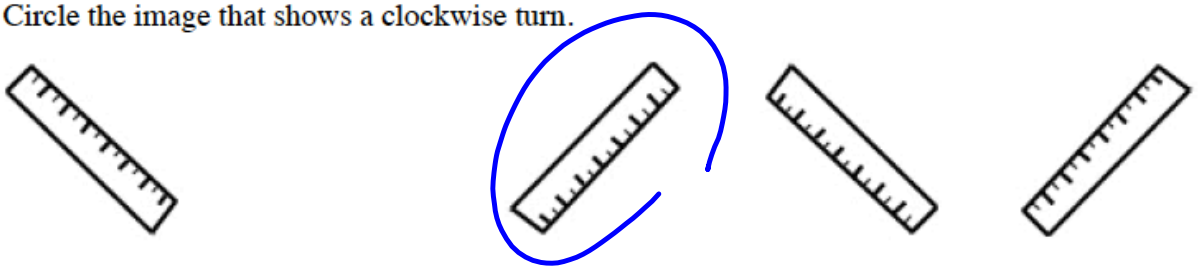
Name _____ Date _____

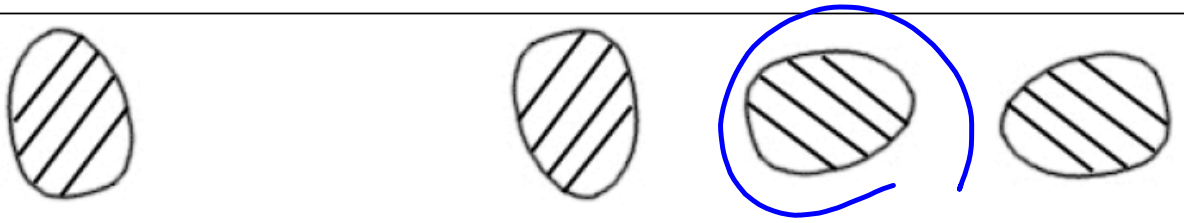
Clockwise Turn

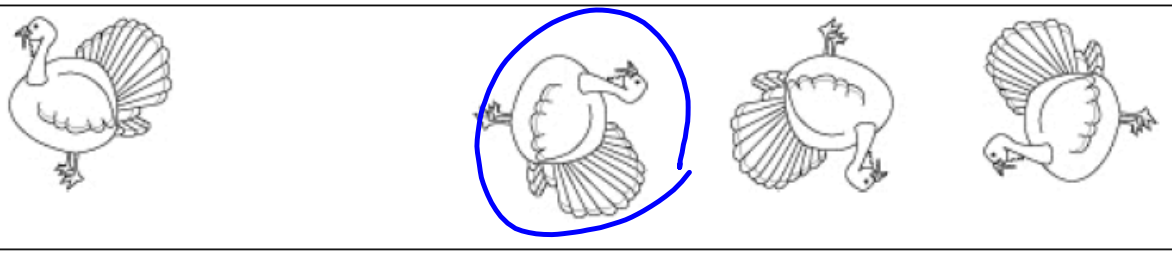
A clockwise turn is a small turn to the right and down.



Circle the image that shows a clockwise turn.





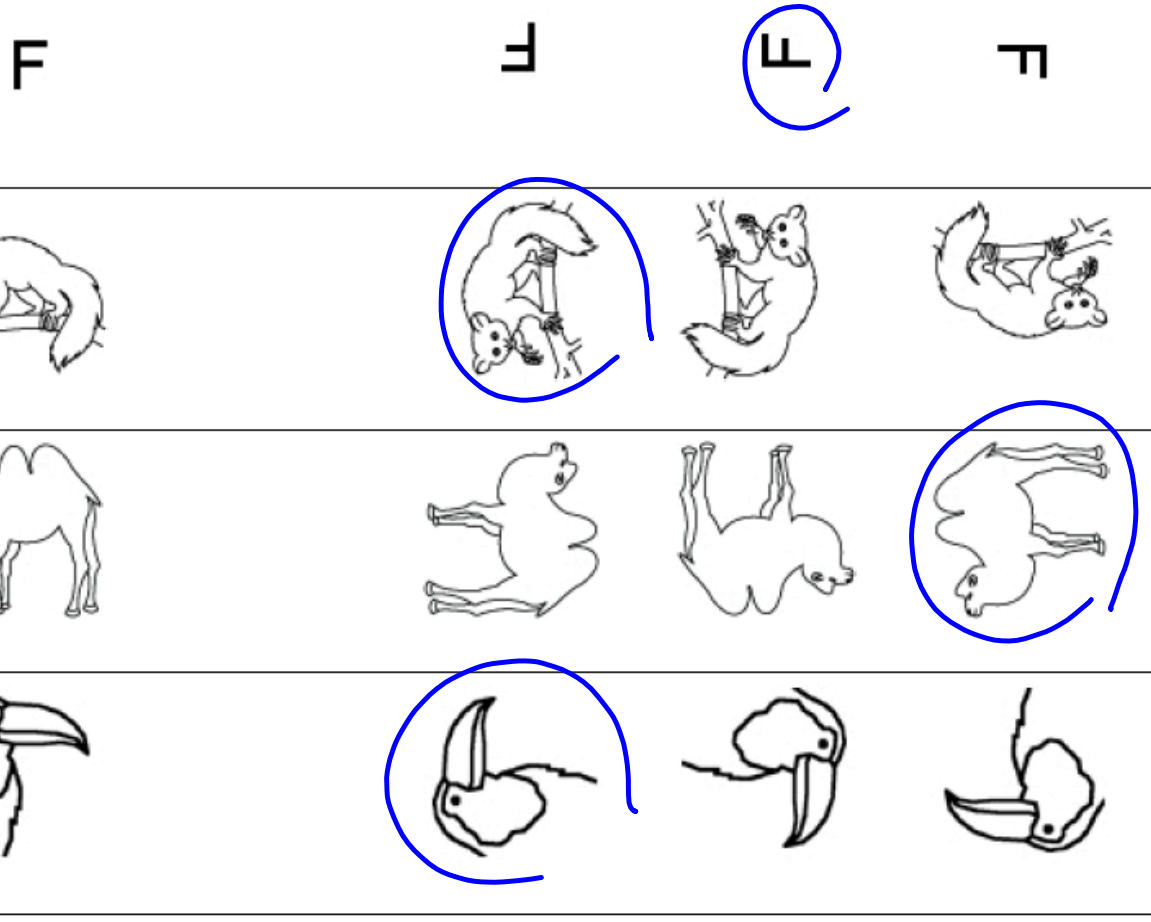


Name _____ Date _____

Counterclockwise Turn

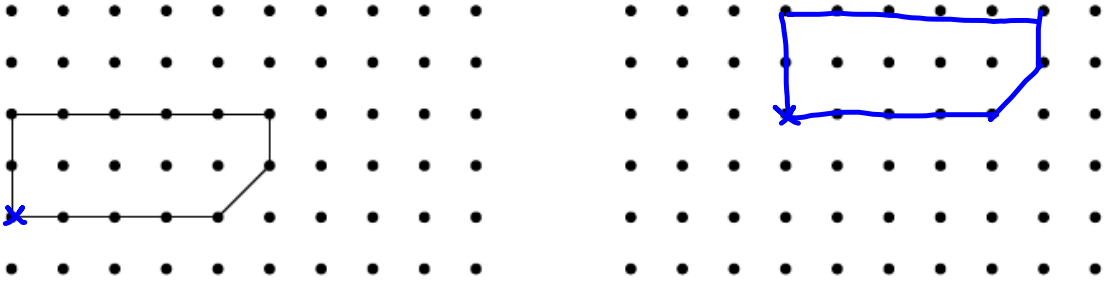
A counterclockwise turn is a small turn to the left and down.

Circle the image that shows a counterclockwise turn.

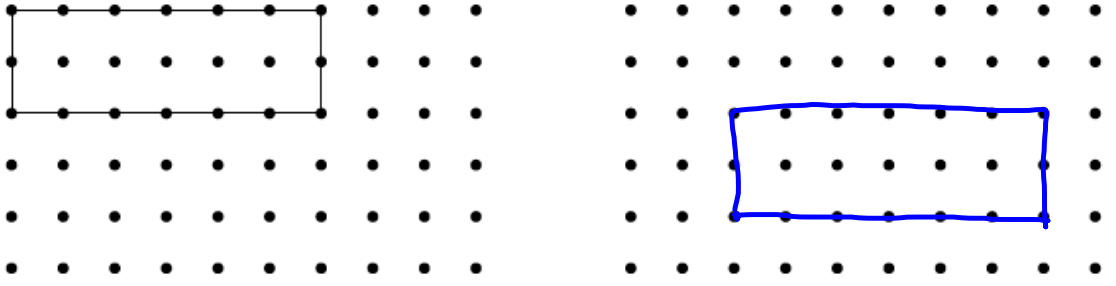


Name _____ Date _____

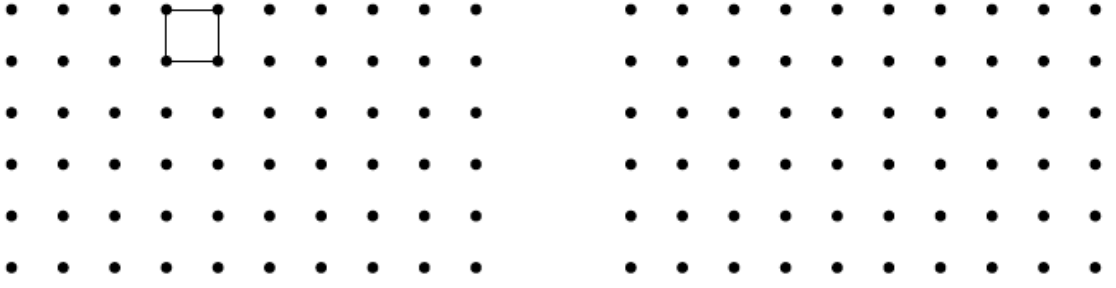
Draw a slide of the shape by moving the shape 3 dots to the right and 2 dots up.



Draw a slide of the shape by moving the shape 2 dots to the right and 2 dots down.

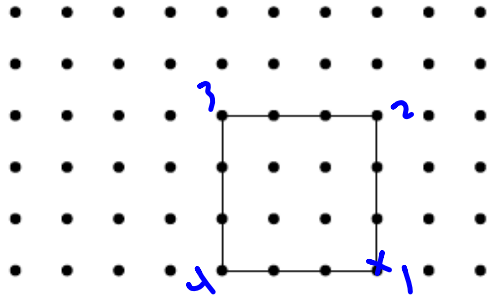


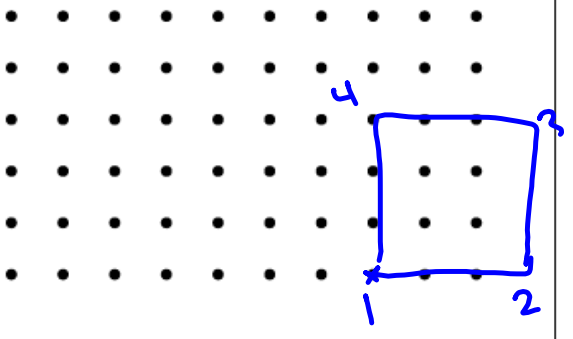
Draw a slide of the shape by moving the shape 3 dots to the left and 3 dots down.



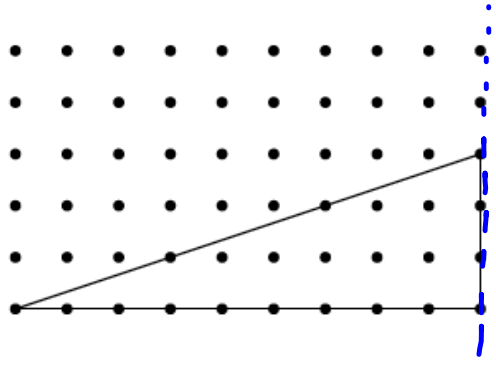
Name _____ Date _____

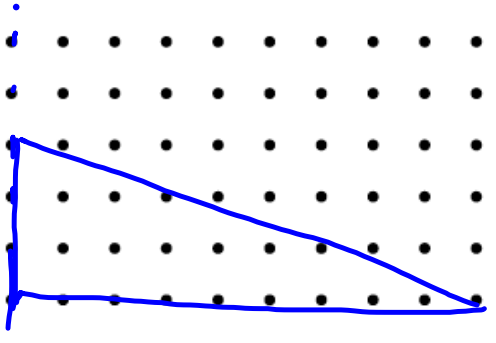
Draw a clockwise turn of the shape.



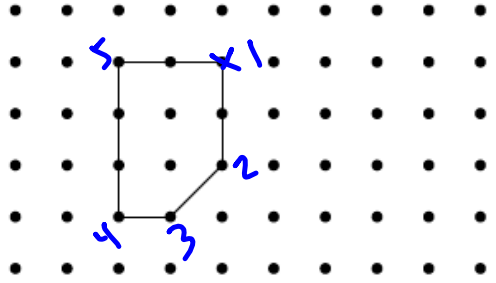


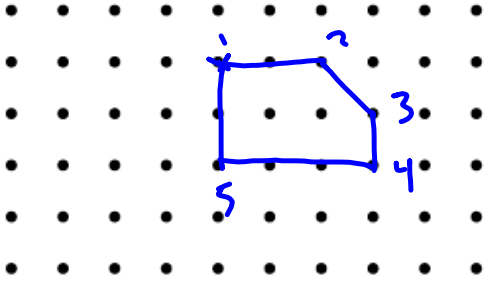
Draw a horizontal flip of the shape.





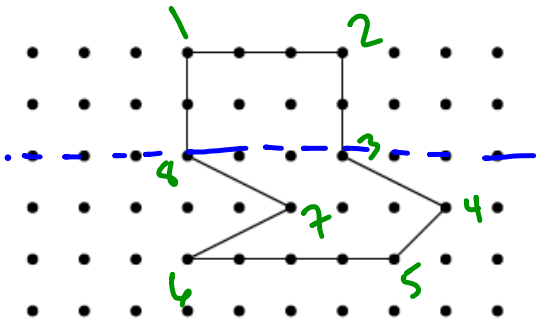
Draw a counterclockwise turn of the shape.

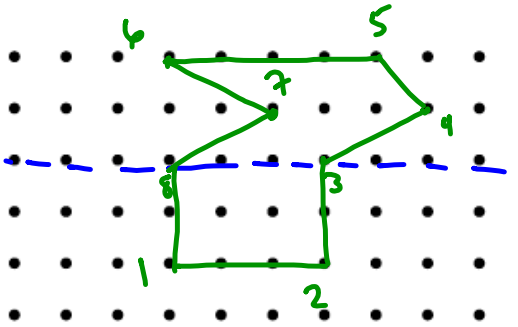




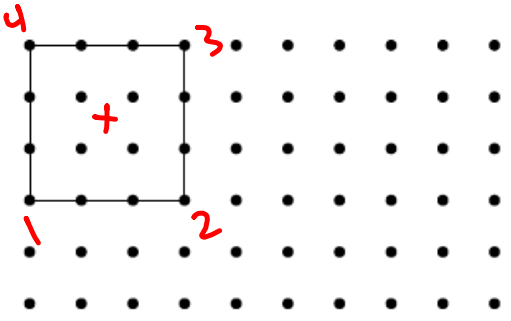
Name _____ Date _____

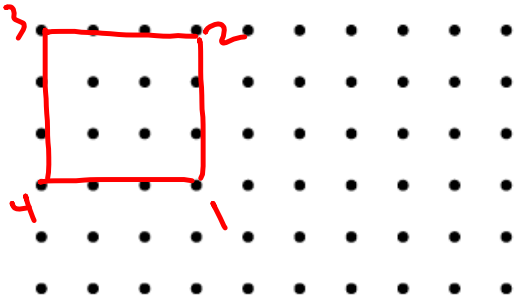
Draw a vertical flip of the shape.



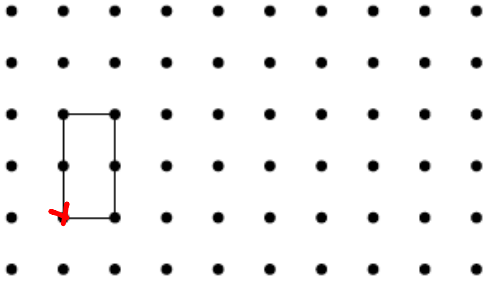


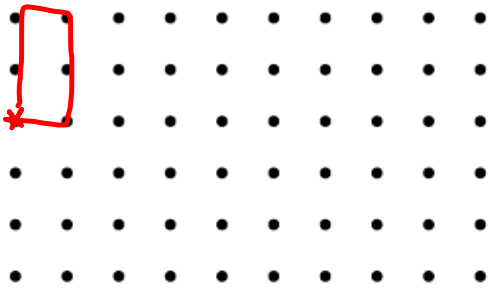
Draw a counterclockwise turn of the shape.

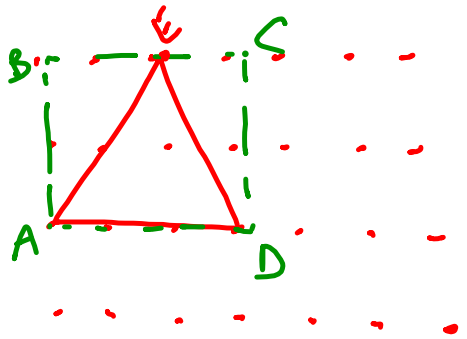




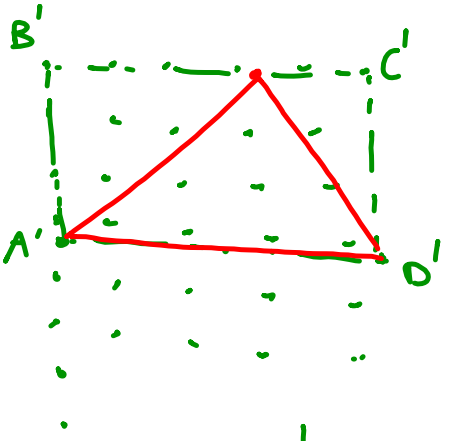
Draw a slide of the shape by moving the shape 1 dot to the left and 2 dots up.



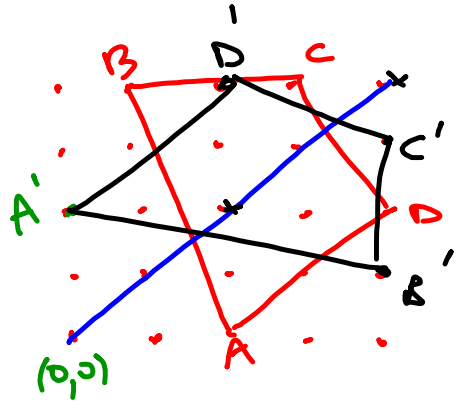


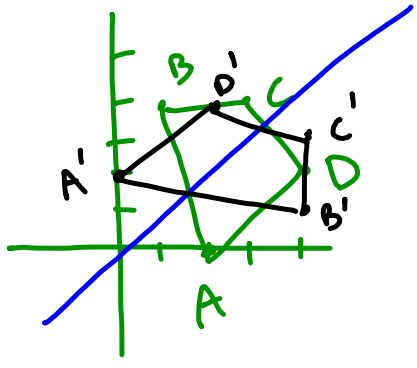


scale by $\frac{5}{3}$

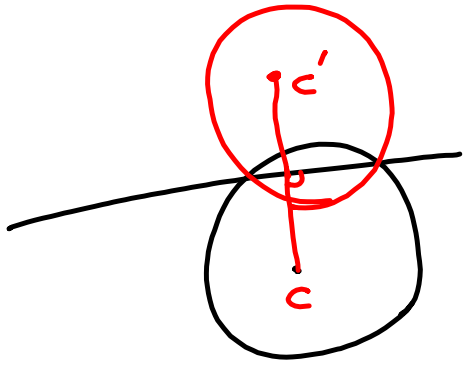


13.2B #1





13.2A #4



13.3A #11)

$x=?$ $y=?$

scale factor = ?

$\frac{6}{y} = \frac{7}{15}$

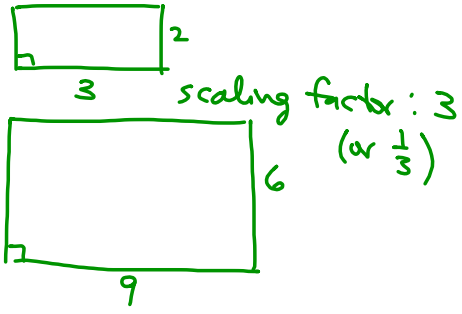
$6 = \frac{7}{15} y$

$\frac{15(6)}{7} = y \Rightarrow y = \frac{90}{7}$

$\frac{x}{14} = \frac{7}{15}$

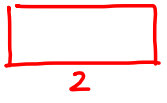
$x = \frac{7(14)}{15} = \frac{98}{15}$

scaling factor: $\frac{7}{15}$ (or $\frac{15}{7}$)



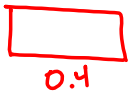
scaling factor: 3 (or $\frac{1}{3}$)

12.4A #8)



reduced by 80%

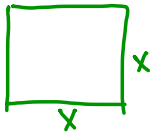
" again by 80%

after 1 reducing 

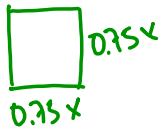
after 2nd " 

$0.8(0.8) = 0.64$ (total 'reduced by')

12.4A #10)



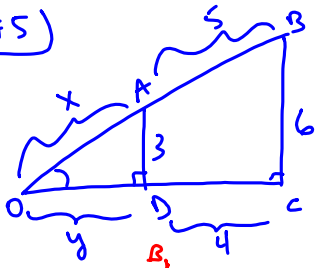
reduce to 75% of original size



scale factor: from big to small = $0.75 = \frac{3}{4}$

from small to big = $\frac{4}{3}$

13.3B #5)



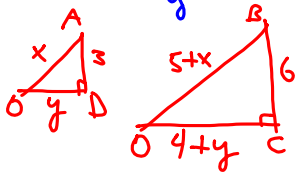
by AA,

$\Delta OAD \sim \Delta OBC$

scale factor = ?

x = ? , y = ?

scale factor = 2 (small to big)



① $\frac{y}{(4+y)} = \frac{3}{6}(4+y)$

② $\frac{x}{5+x} = \frac{3}{6}$

$x = \frac{1}{2}(5+x)$

$\frac{1}{2}x = \frac{5}{2}$

$x = 5$

$y = \frac{1}{2}(4+y)$

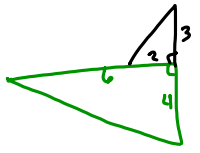
$y = 2 + \frac{1}{2}y$

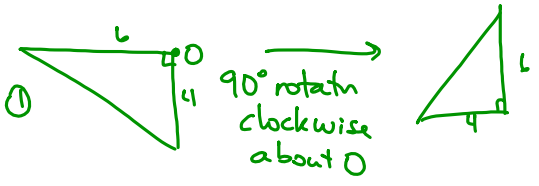
$-\frac{1}{2}y \quad -\frac{1}{2}y$

$2 \cdot \frac{1}{2}y = 2 \cdot 2$

$y = 4$

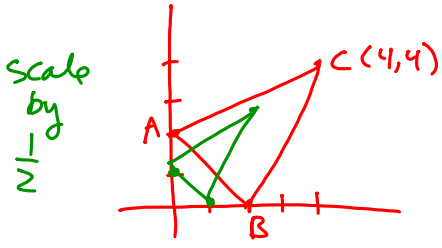
13.3B #1) (a)





② dilation : scale factor of $\frac{1}{2}$

13.3B #2)



13.3 mc #3)

scale by $\frac{1}{2}$

scale again by $\frac{1}{3}$

F to F'' : scale factor is $\frac{1}{6}$

Midterm 1 Review Qns

11 Rev #9) regular n-gon has int. angle 176°

$n = ?$

$(n-2)180°$ = total angle measure for n-gon

vertex / interior angle of regular n-gon $= \frac{(n-2)180°}{n}$

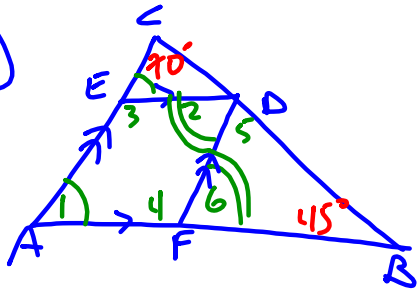
$$(n)\ 176° = \frac{(n-2)180°}{n}\ (n)$$

$$176n = 180n - 360$$

$$-4n = -360$$

$$n = 90$$

11 Rev #15)



(ΔABC)

$m\angle 1 + 70 + 45 = 180$

$m\angle 1 = 65°$

$m\angle 2 = m\angle 6 = m\angle 1$

alt. int. angles corr. angles

$m\angle 2 = 65°$

$m\angle 3 + 65° = 180°$

$m\angle 3 = 115°$

$65 + 65 + 115 + m\angle 4 = 360$

$m\angle 4 = 115°$

(ΔDFB)

$m\angle 5 + 65 + 45 = 180$

$m\angle 5 = 70°$

11 Rev #25 d) # diagonals = 4860

n-gon # diagonals $\frac{(n-3)n}{2}$

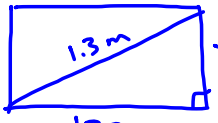
$\frac{(n-3)n}{2} = 4860$

$(n-3)n = 9720$

$n^2 - 3n - 9720 = 0$

$n = \frac{3 \pm \sqrt{9-4(-9720)}}{2} \simeq 100$

#32)



P = ?

$x^2 + 120^2 = 130^2$

1.3 m = 130 cm

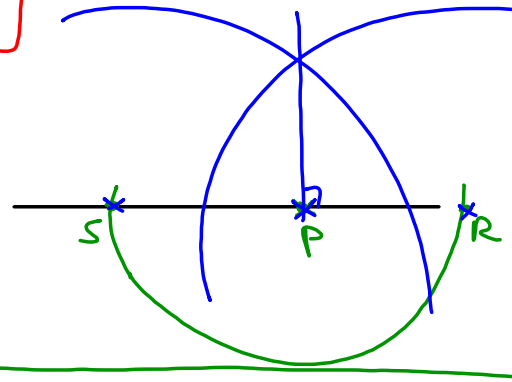
$x = 50$

$P = 120(2) + 50(2) = 340$ cm

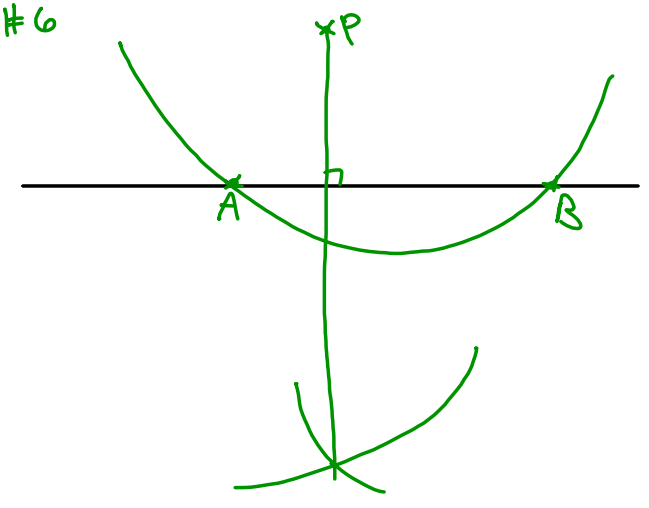
12 Rev #3

const. #5

⊥ line thru P. (P on the line)

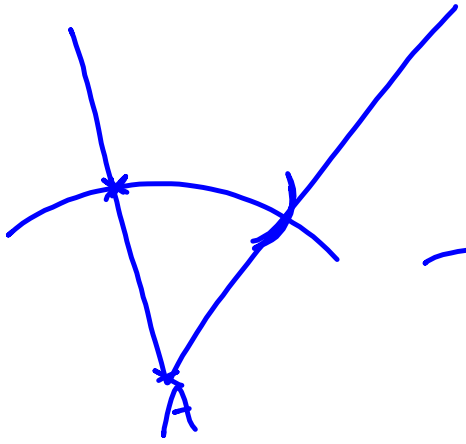


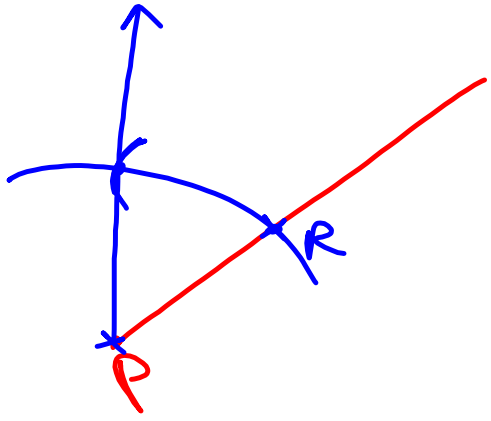
const #6



const #2

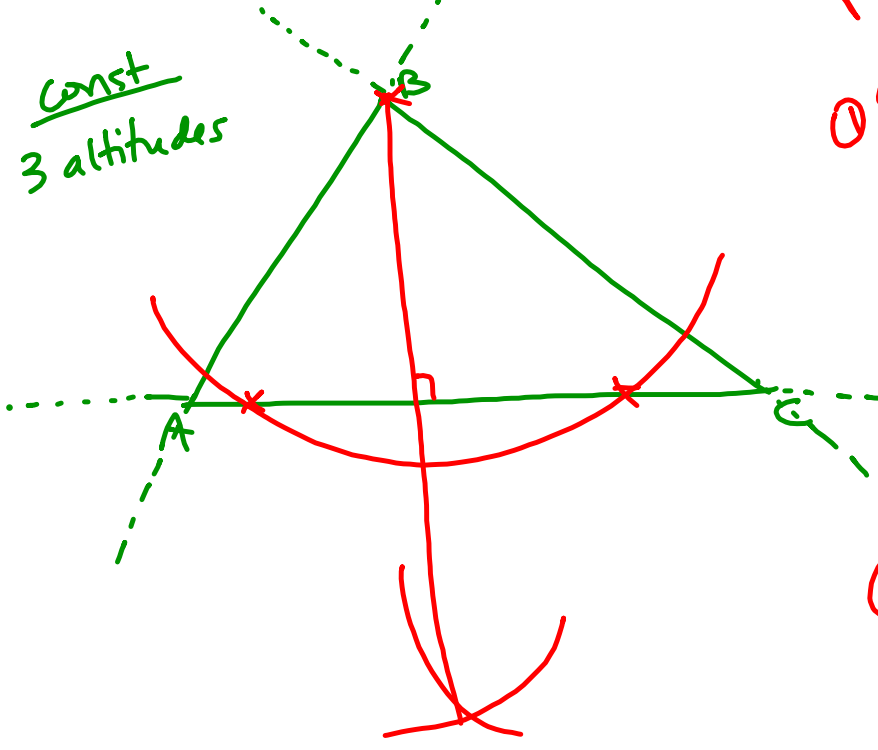
copy an angle





const

3 altitudes

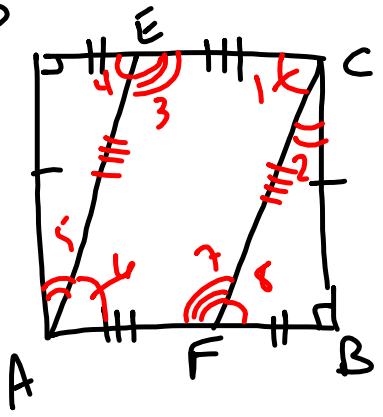


① const ⊥ line thru B and $\overline{AC}$ (const #6)

② const ⊥ line thru pt C and $\overline{AB}$

③ const ⊥ line thru pt A and $\overline{BC}$

12 Rev #2) D



AECF shape?

$m\angle 1 + m\angle 2 = 90°$

and $m\angle 5 + m\angle 6 = 90°$

$m\angle 5 = m\angle 2$

$\Rightarrow m\angle 1 = m\angle 6$

$\triangle ADE \cong \triangle CBF$ by SAS

$\angle 4$ and $\angle 6$ are alt. int., and therefore $\cong$

$\Rightarrow \overline{EC} \parallel \overline{AF}$

$m\angle 1 = m\angle 6$ and

$m\angle 4 + m\angle 5 = 90°$ and $m\angle 5 + m\angle 6 = 90°$

$\Rightarrow m\angle 4 = m\angle 6.$

$\Rightarrow m\angle 1 = m\angle 4$

$\Rightarrow \overline{AE} \parallel \overline{FC}$ (corresponding angles)